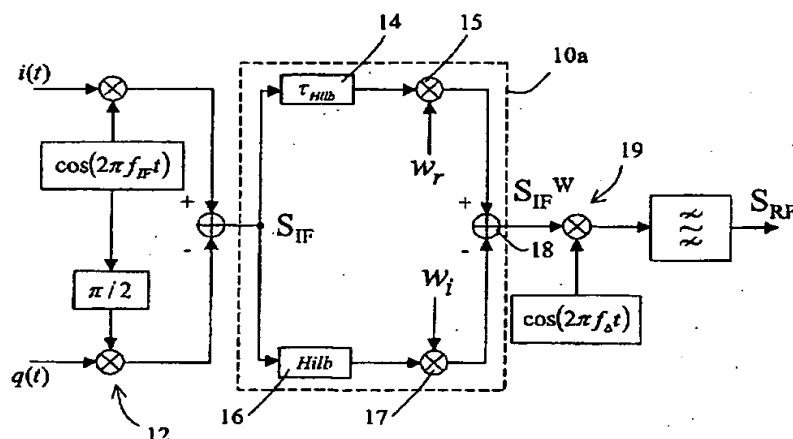




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[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR PERFORMING DIGITAL BEAM FORMING AT INTERMEDIATE FREQUENCY ON THE RADIATION PATTERN OF AN ARRAY ANTENNA



(57) Abstract: A method of performing digital beam forming on the radiation pattern of an array antenna (34) comprising a plurality of antenna elements (34a-34c), each antenna element being coupled to a signal processing chain, said method comprising a weighting phase in which at least a complex weight coefficient ( $W_r$ ,  $W_i$ ) is applied to a digital signal in a corresponding signal processing chain, characterised in that said digital signal is an intermediate frequency digital signal ( $S_{IF}$ ,  $S_{IF}^W$ ), and in that said weighting phase comprises the following steps: a) duplicating said digital signal into a first and a second digital signal; b) processing said first and second digital signals by: - multiplying (15, 17) said first and second digital signals respectively by a real ( $W_r$ ) and an imaginary ( $W_i$ ) part of said complex weight coefficient; - applying a Hilbert transform (14) to that signal which is multiplied by the imaginary part ( $W_i$ ) of said complex weight coefficient; c) combining (18) said processed first and second digital signals into a weighted digital intermediate frequency signal ( $S_{IF}$ ,  $S_{IF}^W$ ) by subtracting said second signal from said first signal.



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